“Medical Geography Instructions for the Malay Archipelago”

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Mixed Malay-Papuan type natives of Livuliri
(near Larantuka, Flores Island)

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Doctor Rück, presently a physician in Sumatra, has honored the Anthropology Society by requesting it to guide his studies on the Malay Archipelago, specifically from the medical point of view.

Charged with responding to his request to the Society, I am not afraid to state that the situation of Doctor Rück enables us to await from him more than he will receive from us. I shall nevertheless, by means of an outline that can be of service to the original researches of our confrère, provide a summary of the current state of our knowledge on this question.

The Malay Archipelago, commonly called ***Malaysia***, is comprised of the islands of Sumatra, Java, Borneo, Timor, Flores Island, the Moluccas, the Celebes, and the Philippines; these islands extend from 10° S. latitude to 19° N. latitude and 90° E. longitude to 128° E. longitude.

One therefore ought to expect to find in Malaysia the principal marks of the ***intertropical pathology***: ***heat*** and ***humidity***, each contributing to assure the sudden appearance of various maladies. It is important, however, to make allowance for three conditions:

1. The insular topography;
2. Variations in altitude;
3. The seasons.

Insular topography. – Thanks to the topography of the constituent parts of Malaysia, the average temperature, although hot, does not exceed 30° C., whereas much farther from the equator in continental India it rises up to 40° C.

Variations in ***altitude***. – One needs to know not to mix within the same medical geography study the different parts of the Malay territory without taking into account differences in altitude.

Accordingly, and rightly so, Dutch researchers have divided Malaysia into many zones with respect to altitude:

A ***torrid*** zone, comprising land between sea level and an altitude of 2,000 feet, presents in its lower part a temperature of 27° C. and in its upper part a temperature of 23° C.; the quantity of water vapor is 20.25 grams per cubic meter.

A ***temperate*** zone, from 2,000 to 4,500 feet, possesses an average temperature of 23° C. at its base and 18° C. at its top; its humidity level is 15.7 grams water vapor per cubic meter.

A ***cool*** zone, ranging from 4,500 to 7,500 feet, averaging 13° C. at its highest part, has a humidity level of 11 grams water vapor per cubic meter.

A ***cold*** zone, existing from 7,500 feet to 10,000 feet, is characterized by both a low average temperature of 8° C. and a low humidity level of .76 grams of water vapor per cubic meter.

Lastly, the ***seasons*** supply an important element of variability to the intertropical pathology. When the sun is in the southern hemisphere, the wind blows from the northwest, bringing about the ***wet monsoon*** (or ***bad monsoon***). When the sun is in the northern hemisphere, the wind blows from the east, producing the ***dry monsoon*** (or ***good monsoon***).

It is nonetheless true that the ***torrid*** zone is the most extensive and that the hygrometer reads .80 to .81 in the dry season, and .91 to .92 in the rainy season.

Heat and humidity make Malaysia a land of ***fever***, ***hepatitis***, and ***dysentery***. Many writers, Armond among others, think that people have very much exaggerated the insalubrity of Sumatra and Java. In Sumatra notably, if the west coast is extremely unhealthy and has been justly been named the ***coast of pestilence***, the east coast will frequently present examples of great longevity.

Nevertheless, torrential rains, frequently overflowing streams, luxuriant vegetation that furnishes an abundance of detritus, and lastly constant warm weather—all these contribute to supporting homes for and sources of malaria.

But these malarious homes only become homes of intermittent fever for man. Enormous pachyderms seem to find in these insalubrious surroundings particularly favorable conditions of development. Man does not have this privilege, or at least, if he has it, he has it more unequally; in other words, if the study of the climate of Malaysia must precede any methodical study of the pathology of this region, one can say as much for the study of another milieu, or the ***study of races***.

Doctor Rück, in the studies that he intends to make, ought therefore to not just strive to construct a geographical map of maladies that allows for climatic or seasonal variations, which would also be very useful to the science of colonization and acclimatization; but, above all, he could render a great service to ***anthropology***

by sending us what can be called ***ethnologic*** maps of pathology.

What is the pathology of Malaysia, and what is, throughout the Malay Archipelago, the pathology of each race? Well, the races are numerous. One finds here a veritable jumble of races that are today difficult for one to make a distinction between, given that they are mixtures, confoundedly so up to a certain point.

The black, yellow and white races of varying purity that are met with in Malaysia are more or less complex mélanges of the following: ***Negritos***, ***Papuans***, ***Dravidians*** and ***Mundas***, ***Allophyles*** and ***Aryans***, ***Malays***, ***Malayo-Polynesians***, and ***Indo-Chinese***, all of whom have come into collision with the ***European***, ***Arab***, and ***Chinese***.

Black race. – The black race, perhaps the most ancient of Malaysia, has been in all respects displaced, and has largely disappeared by either amalgamation or extinction.

This race, which is quite different from the black African race, is derived most likely from the Southern Mundas, and belongs to what we call the ***Negritos***. It only exists in the interior of the Philippines, where it is represented by the ***Aetas***; in the interior of Halmahera; and perhaps, it is said (but this fact needs to be verified), in the interior of Borneo and Sumatra.

The hair of Negritos is woolly, but the forehead is more bare than it is among the Negroes of Africa. The nose, though flattened, is turned up at its tip; the lower jaw is narrow.

According to Bernardo de la Fuente, one needs to distinguish between two black races in Malaysia, and especially in the Philippines. One race will be short, woolly-haired, and little civilized; these people are the ***Aetas***—Negritos. The other race will be taller, with smooth hair, and is named the ***Endamens***; these people turn out to be cross-breeds of the yellow race and Negritos. Unfortunately, the word ***Endamen*** lacks precision, it having been used by Lesson to name blacks with smooth hair inhabiting New Guinea; but there do not exist in New Guinea any blacks with smooth hair.

Relying upon various pieces of information, Professor de Quatrefages and Doctor Hamy have proceeded to point out that the ***Vandemenes*** are a Papuan tribe in New Guinea, and that they are very distinct from the Negritos.

Does the Papuan area, which is near that of the Negritos, extend beyond just one part of Malaysia? This remains to be determined. I can ask as much about the ***Alfurus*** of the Celebes who, although this name has been given to different tribes, are only, in reality, Papuan tribes from western New Guinea whose extent includes the Celebes and the Moluccas. To the Negritos one must also attach the Orang Sakai of Belitung and Bangka, the Dagangs of Borneo and the Daras of Sumatra.

The ***yellow race*** is represented in the Philippines by the Igorots; additionally, in the Philippines the rather vaguely named ***Indo-Chinese*** race—more commonly known as the ***Tagals***—has driven the Aetas back into the country's center.

To the ***Malayo-Polynesian*** race belong other groups inhabiting the Malay Archipelago. These are:

The ***Bataks*** of Sumatra, who are dolichocephalic and who possess a thinner nose and less prominent cheekbones than the Malays; the men have thick beards, while the breasts of the women are voluminous and globulous. A close correspondence has been signalized between their type and the purest Polynesian type.

Living in the forests as nomads, they engage in a rather peculiar commerce at Palembang: one deposits at a convenient drop-off spot certain commodities (rice, fabrics, and so on), sounds the gong and withdraws from the place; the Bataks then arrive, carry away the objects and leave behind at the drop-off ivory, after which they retire back into the forest.

Also inhabiting Sumatra and belonging to the Malayo-Polynesian race are the ***Passumahs***, who are a mixture of Bataks and Javanese.

Looking at Borneo, we see that the ***Dayaks*** play the same role there as the Bataks do in Sumatra. These celebrated head-hunters maintain with great care vases of enameled pottery, which they say had been brought from India a long time ago.

In the Celebes the ***Buginese*** belong to the same race; however, according to Rochas, they are much superior to the Bataks and Dayaks, and are distinguished for being a completely energetic, sportive people. Very fit for civilization, it is the Buginese who perhaps one day will be capable of struggling unaided against the Malay tyranny.

Meanwhile, the ***Rottinese*** seem to form a type apart from others inhabiting the

archipelago. Their flat, slender nose, not very prominent cheekbones, thin lips, and flowing, if not often curly, hair go with a very dark color of the skin.

The ***Malay element*** dominates in all the previously-mentioned groups, I should add.

Now, it is only with great difficulty that one sees how to disentangle the Malay element in an investigation of the chronology of races; moreover, this element above all appears to be the result of a complex mélange rather than as one of the primordial composing elements. Variable on such-and-such a point according as to how the mélange has been effectuated in differing proportions with other races, the Malay unity only definitively rests on the union of the yellow race and black race, as well as on the community of fanaticism that Islam has given to these people—people who Professor de Quatrefages has justly named the ***Arabs of the Orient***.

It was about 1160 A.D. that these people appeared for the first time in history; shortly afterwards, proceeding westwards from Palembang in Sumatra, they went on to establish Singapore in the Malay Peninsula. But, this east to west movement had itself been preceded by a contrary movement of people emanating from the valley of the Irrawaddy in Burma, had dispersed themselves through the Malay Peninsula into the Sunda Islands, and who in the process had come into collision with those islands' three races—the Negritos, Papuans, and Polynesians.

One finds them nowadays a little everywhere throughout the archipelago, but mainly in the southwest part of Sumatra, Borneo, Bangka and Riouw.

The physical qualities of the Malays are as follows: the height is not very tall, the skin is light brown and copper-colored, the nose is short, flat, and broad, with the nostrils being dilated; the jaw is prominent as are the cheekbones, and the face is as wide as it is long; the mouth is large, the lips thick, the beard thin, and the hair is black, straight, thick, hard, and rarely curly.

On the whole their type approximates that of the Chinese; the Malays are Mohammedans, fond chewers of the betel leaf, intelligent but tyrannical, lazy and perfidious, buccaneers and pirates, and above all cosmopolitans.

Besides these well-established types one meets with in Malaysia, additional types, living in a more or less isolated state, are encountered. These include:

The Hindu type, which persists near the famous ruins of Borobudur in Java; in the Tengah mountains one still beholds a tribe called the ***pagans of the Tengah***

30-year-old Sundanese of Java. Note the prominent cheekbones and jaw, dilated nostrils, and other physical qualities characteristic of Malays.

mountains, which is directly descended from the Hindus. Kindly, open-hearted, and hospitable, they have nothing to do with opium or strong liquor.

A population named the ***Telingas*** from the coast of Malabar in southwest India make their way to the Sunda Islands with the west monsoon and go back with the east monsoon.

The ***Arabs*** have been in Malaysia since the third century. They have interbred less with the other races than have the Chinese.

The ***Chinese*** have been dispersed throughout the Malay Archipelago since the fifth century, but it has only been since the sixteenth century that they have established durable colonies on the west coast of Borneo. Working mainly in the mines, they have formed societies—sort of small federative republics—for the exploitation of the mines, and have pushed out of their way the Dayaks, just as the Malays have done.

Finally, one finds in Malaysia the European element, brought over from Europe in great numbers by the Dutch and French overseers after the revocation of the Edict of Nantes, and their very beautiful (it is said) hybrid offspring, who are known under the name of ***Lip-Lap***.

It is therefore over this quite varied terrain that Doctor Rück will have to conduct his research.

Before studying the pathology that the various climates and races of Malaysia will present to him, it would prove interesting for our physicians and useful for ethnology if Doctor Rück would acquire some more precise information than what we already possess concerning the ***medical practices*** of the Malays and of the peoples under their submission; and by medical practices one may include, by extension, not only the popular usages and customs whose unconscious aim, if not result, is hygiene—such as, for example, the chewing of betel leaves—but also practices possessing a much more conscious aim, notably those having as their object the poisoning of arrows and daggers.

The exercise of medicine on the part of the Malays is characterized by a certain emphasis; they nearly extend into a science the art of ***massage***, ***compression***, and ***frictions***. It is mainly old women who practice these maneuvers to which they give the name ***pitjit***. A typical pitjit session often runs for two hours or more nonstop, and our Navy doctors have themselves verified excellent results from the use of pitjit in the treatment of rheumatism, which is very rare in the Sunda Islands.

When it comes to means of effecting childbirth, by contrast, one sees the Malays engaging in many less sagacious practices: as soon as the bag of waters ruptures, the pregnant woman is laid down on the floor, and from this moment on the midwife never lets go of the cervix of the uterus, pulling out that which presents itself, this occurring while vigorous female assistants push down on the patient's stomach in order to force the baby to emerge. If these means of force continue to be ineffectual, the midwife and her assistants attempt a kind of exorcism; they order the baby to emerge at the same time that they spit upon the face of the mother. As soon as the child is delivered, and the assistants have gotten rid of as much of the placenta as possible, the mother takes a bath and attends to her affairs.

As for the baby, after having cut the umbilical cord once the afterbirth has come out, the helpers celebrate the newborn by snacking on fingersful of rice mash.

Nothing gives better proof of the robust constitution of the Malays than these practices to which they apply themselves.

I must, of course, mention the well-known custom of chewing betel leaves—an essentially Malay practice—which seems to contribute a great deal to tonifying the digestive canal (which is so subject to diarrhea in the hot countries); above all, this custom prevents and impedes, like a parasiticide, the development of

numerous maladies caused by parasites. I should add, as most of you know, that Du Perron himself has quite happily conformed to this custom.

Many plants are employed with advantage as medicines by the Malays. These include:

The milk of ***cocos nucifera*** in genito-urinary ailments;

The leaves of ***hura crepitans*** against framboesia;

Ophioxylon serpentinum is employed as a counterpoison for venomous wounds; lastly, ***radix toxicaria*** is a potent emetic, commonly used by the natives to combat poisonings or poisonous wounds.

Doctor Rück will certainly be rightly inspired to study the effects of these substances and to send us samples that would be able to be submitted to analysis as well as augment our therapeutic arsenal.

Deadly methods have not been any less developed and refined in Malaysia than the curative agents. It is thus that we see in Java the natives applying on their arrows the cutaneous secretion of a lizard, the ***gecko virosus***.

In Borneo the natives also avail themselves in a like manner of the juice of the ***antiavis toxicaria*** and ***strychnos pieute*** plants, as well as of that of two other plants—the ***nerium*** and ***fabernea montana***; finally, they utilize in the same sense a cantharis, the ***lytta ruficeps***.

All these poison-tipped arrows do not seem to have been very murderous in the last war against the Dutch; nonetheless, it is true that during battle the weapon was one after another withdrawn from the wound and that suction was then carefully carried out.

Doctor Rück will therefore again merit praise and our thanks by sending us and studying on the spot the diverse substances in question.

Turning to another area of investigation, we lack data on the average life expectancy of the different races of the Malay Archipelago.

It appears, meanwhile, that in the Philippines the Spaniards do not reproduce themselves much beyond the first and second generation without intermixing with the indigenes. For example, in 1875 one census taken in the Philippines of those

between 25 and 100 years of age came up with 4 Spaniards, 226 hybrids, 5,746 Tagals, and 2 Chinese; those over 100 years old numbered 4 hybrids and 283 Tagals.

At Batavia (Java) the death rate of foreigners is 1 out of 16.53, and that of the indigenes is 1 out of 24.80.

The Malays are renowned for their uniquely special ability to go without water for a long time. It would perhaps be interesting, through analyses of the blood and above all by determining the number of blood cells, to research the cause of this phenomenon.

Before studying the different maladies that severely affect with more or less frequency each race inhabiting the Malay Archipelago, a comparison of the ***intensity*** and ***form*** of the illnesses common to all the races would prove of interest. I say this in light of the observations of Doctor Van Leent, who found that the maladies assumed amongst the Europeans an inflammatory character, and amongst the natives an ***erethitic*** character.

The three main illnesses of Malaysia are ***intermittent fever***, ***hepatitis***, and ***dysentery***.

In Java the natives suffer less from intermittent fever than do others; however, according to Doctor Van Leent, those who come to Batavia from the interior of the island, or those who inhabit the old town which is located along the river, are sometimes gravely attacked.

Furthermore, whereas the pernicious form of intermittent fever is with the European algid and apoplectic, with the ***indigene*** it is comatose, an important distinction to take into account when examining the difference of races in the same milieu.

From 1855 to 1857 Dutch ships at Java reported the following 4,089 cases of intermittent fever:

Quartan fever	46
Tertian fever	990
Quotidian fever	2889
Irregular fever	164
	4,089

Also, as you might surmise, intermittent fever does not reign with the same intensity throughout the Malay Archipelago; although it strikes very frequently on the west coast of Sumatra and at Batavia, it is entirely nonexistent in Makassar and on the west coast of the Celebes.

Dysentery is extremely frequent in Java; at Surabaya it causes one-third of all cases of disease. In Sumatra and the Philippines dysentery is likewise very common and serious; it strikes without distinction of race, sex or age, and the number of indigenes taken care of in the hospitals is considerable. Nevertheless, indigenes and the acclimated are less subject to this malady.

Doctor Pop has provided the following ratio of Europeans in Malaysia attacked by dysentery: in 1880, 7.17 Europeans out of 100 were affected; in 1861 and 1862, 6.72; in 1863, 6.02; in 1864, 2.75; and in 1865, 3.28. This progressive diminution to all appearances corresponds with the improvements in hygiene introduced everyday by the Dutch.

Hepatitis occurs with great frequency as well, but it primarily attacks the Europeans. Its extent throughout Malaysia matches that of intermittent fever because, like this latter, hepatitis is rare in the Celebes and the Moluccas, though common in the coastal region of Sumatra, Java and Borneo (where intermittent fever is always prevalent).

Cholera has a permanent presence throughout the entire archipelago; it strikes the natives as much as the Europeans. Bontier is said to have observed it in 1631; cholera seems, however, not to have been introduced into Malaysia until 1819. It was, at least, only after this date that it became endemic. It appears to have disappeared from 1830 to 1853; but, in 1864-1865 it inflicted frightful ravages in Java.

One malady that ought especially to attract the attention of Doctor Rück is the strange ailment called ***beriberi*** which so little is still known about. Our correspondent will be in a position to choose among the numerous theories that have been emitted on the disputed nature of beriberi, having considered it in turn as:

1. A myelitis epidemic (Vinson);
2. Rheumatic-related;
3. A kind of scurvy (Dutch doctors);
4. A ***miasmatic*** poisoning (English theory);
5. A blend of scurvy and malaria;
6. A blend of scurvy and rheumatism.

What is certain is that this malady scarcely affects anyone but the ***indigenes***, yet it deals less severely with them than it did in former times, owing perhaps to ***native convicts working in the rivers***, ***cleaning up the water***. Beriberi claims its victims mainly in Sumatra, Java, Amboina, and the Moluccas.

Identical affections have been depicted under the name of "Amboina button" and "framboesia." Bontier was the first to identify Amboina button as a venereal disease and more particularly to associate it with a variety of syphilitic ***molluscum***. It seriously afflicts only the blacks and Malays, especially women as well as children 10 to 12 years of age. It is contagious, inoculable, and hereditary. Most interestingly, it does not attack the indigenes, but does the half-breeds, evidence of the import of pathological qualities.

One very important fact to check is the result of framboesia inoculation against ***leprosy***.

Lastly, truly ***ordinary syphilis*** is not rare; but, in certain islands west of the Celebes, and notably at Gorontalo, it is not of a very ancient date. It arose in 1854.

DISCUSSION

Professor EUGÈNE DALLY. From what explorers have said, the population density of Java surpasses that of the most populous countries of Europe. One will not count fewer than 17 to 18 million inhabitants in this island. What has brought about such a high density? Clearly, it is important that light be cast upon this demographic problem.

Now, the diet of the inhabitants might up to a certain point be able to explain this exceptional density. Indeed, it is an established fact that the Javanese feed themselves hardly anything; their nourishment is exclusively vegetarian, and it is not very ample at that. But, this presents another problem. How can people who are so little nourished be equal to the strenuous agricultural work to which they apply themselves for the most part?

Additionally, these people also appear to be able to endure hardships that to us seem very considerable. For example, in Java one observes divers named ***cliqs*** who are capable of remaining under water for four or five minutes; one might compare them to the Japanese running footmen who run all day and only pause long enough in order to take in some nourishment. One must wonder if it is some sort of special training which permits them to carry out these grueling tasks, or if it is a particular physiological disposition.

Among the maladies that one finds among the Javanese, elephantiasis merits special mention; we know that in the West Indies this illness indiscriminately strikes all races, including the whites.

Doctor Bordier, you indicated the frequency of madness among these people. Now different species of madness strikes them, and one in particular ought to be cited—the murder madness, called ***amuck***. The individual struck with this madness is immediately declared sick and irresponsible. Everyone rushes him in order to prevent him from committing some murder, and they overpower him at once. I wonder whether the use of opium is sufficient enough to account for this singular malady.

Doctor JEAN PIERRE BONNAFONT. One must understand that they use opium together with hashish. This fact is important because if opium rarely brings about sanguinary excitation, one ought not to say as much of hashish.

Doctor JULES LUNIER. Among the forms of madness that have been described to us, amuck is one which appears closely analogous to inebriation. It would be interesting to obtain information on this subject: to what degree are alcoholic drinks consumed on Java, etc.?

Epilepsy is also fairly common in the Dutch East Indies; I believe it is worth investigating whether the murder madness of which you spoke, Professor Dally, has any connection with epilepsy.

As for Malaysia's high population density which so astonishes you, Professor Dally, this can be largely explained by the fact that we are dealing with islands. All things being equal, one readily observes that the world's coastlines are more heavily peopled than the interior lands.

Madame CLÉMENCE ROYER. The law that you have just posed, Doctor Lunier, about the constant affinity of a country's population to coastal areas is far from being a general law. For example, in Europe, Belgium, which has a dense population, has only a very short coastline, much less extended relative to that of Greece or Italy.

In short, no part of a country's population is attributable to the length of the coastline; however, population density does have a direct correspondence with the commercial or industrial activity level of the people. This latter law therefore should answer your question, Professor Dally—that is, given that industrial and commercial activity allows for the importation and exportation of goods, a very

commercially-active country can be much more thickly settled than if it were unable to realize revenues from its indigenous agriculture.

Doctor ARTHUR BORDIER. I must point out that although the population is very dense in Java, it is, on the other hand, quite sparse in Sumatra.

In the full report that I am sending Doctor Rück, I mention the murder delirium which you highlighted to us, Professor Dally. I believe that when the causes of this malady are researched, the true causes will be found to reside less in the drinks or excitants peculiar to the Malays than in the nature of these people themselves. The degree of intoxication differs more depending on the individual than with the poison employed for producing the effect. Indeed, in whatever case of drunkenness that is exhibited, the character of the man, not being governed by reason, appears in its nakedness; this is why we justly say: ***In vino veritas***. The Malay, whose character is fundamentally violent and wicked, lets become visible, when he is drunk, all that which his temperament contains of fiery sentiments. No other excitant renders him any better.

One must not confound the betel leaf with the intoxicating substances that people use in these islands. In fact, the betel leaf is a first-rate parasiticide. If diarrhea strikes the European in Cochin China while it spares the indigenes, it is because the European does not make use of betel, which attacks germs in proportion as they have been absorbed.

Professor EUGÈNE DALLY. On this subject, I recall that when our troops first arrived in Cochin China, they instituted the practice of drinking only tea or bottled water. Our troops initially adhered to this local custom which has, as one can see, its reason for existing; after a while they abandoned this practice, whereupon the diarrhea of Cochin China commenced its ravages. In vain Doctor Dounon demonstrated the parasitic nature of this malady; in vain he insisted that our soldiers reinstitute the practice of exclusively using boiled water. This measure, so easy to follow, has not been adopted, in spite of all the factual evidence.

Doctor JULES LUNIER. I believe, Doctor Bordier, that you are far from the truth when you say that the degree of intoxication varies with the races rather than with the agents that have provoked this cerebral state. Regarding this point, I have data that has been collected in America, and in reviewing it one will notice that intoxication affects the Negro and the white in an identical manner.

Doctor ARTHUR BORDIER. It is nevertheless admitted, Doctor Lunier, that

the Negro can tolerate enormous quantities of alcohol without becoming drunk. In addition, his intoxication itself is different from that of the white; when in the drunken state, he is, so to speak, less ideal than the intoxicated European, but is more practical. Thus, there is, in fact, both a difference of dose and action.